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CONCEPTS, STRATEGIES, AND PRIORITIES FOR RESEARCH IN EDUCATIONAL MANPOWER, A SYMPOSIUM ON EDUCATIONAL MANPOWER. FINAL REPORT.

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IN COOPERATION WITH THE BUREAU OF RESEARCH OF THE U.S. OFFICE OF EDUCATION, THE NATIONAL COMMISSION ON TEACHER EDUCATION AND PROFESSIONAL STANDARDS OF THE NATIONAL EDUCATION ASSOCIATION ORGANIZED A SYMPOSIUM ON EDUCATIONAL MANPOWER, WHICH WAS HELD IN WASHINGTON, D.C. ON JANUARY 25 AND 26, 1967. THE PURPOSE WAS TO CLARIFY CONCEPTS AND ESTABLISH PRIORITIES FOR RESEARCH IN EDUCATIONAL MANPOWER BY BRINGING TOGETHER QUALIFIED MEN FOR INTENSIVE DISCUSSION. THE PARTICIPANTS WERE FRANCIS KEPPEL, GENERAL LEARNING CORPORATION, CHAIRMAN, GEORGE W. DENEMARK, DEAN, SCHOOL OF EDUCATION, UNIVERSITY OF WISCONSIN-MILWAUKEE, JOHN K. FOLGER, DIRECTOR, COMMISSION ON HUMAN RESOURCES AND ADVANCED EDUCATION, NATIONAL ACADEMY OF SCIENCE, LLOYD MICHAEL, SUPERINTENDENT, EVANSTON TOWNSHIP HIGH SCHOOL, EVANSTON, ILLINOIS, ARTHUR PEARL, PROFESSOR OF EDUCATION, UNIVERSITY OF OREGON, JOSEPH YOUNG, ASSISTANT DEAN, HARVARD UNIVERSITY GRADUATE SCHOOL OF EDUCATION. THEY DISCUSSED POSSIBILITIES FOR RESEARCH AND SUGGESTED A STRATEGY AND SOME PRIORITIES. FOLLOWING THE DISCUSSION, SOME PARTICIPANTS WROTE PAPERS ELABORATING ON THE SUBJECT. AFTER CONSIDERATION OF THE DISCUSSION AND THE PAPERS, THE COMMISSION RECOMMENDED THAT PRIORITY IN EDUCATIONAL MANPOWER RESEARCH SHOULD GO TO STUDIES OF ROLE DEFINITION AND AUXILIARY STAFF, TO RECRUITMENT AND CAREER CHOICE, AND TO STUDY OF THE TEACHER RESERVE. IT EMPHASIZED THE IMPORTANCE OF IMAGINATIVE AND UNCONVENTIONAL PROJECTS DESIGNED TO YIELD RESULTS OF SUBSTANTIAL VALUE.

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FINAL REPORT

Project No. 7-8207

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A SYMPOSIUM ON EDUCATIONAL MANPOWER

Concepts, Strategies, and Priorities for Research in Educational Manpower

June 5, 1967

U.S. DEPARTMENT OF

HEALTH, EDUCATION, AND WELFARE

Office of Education

Bureau of Research

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A SYMPOSIUM ON EDUCATIONAL MANPOWER

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Project No. 7-8207

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National Commission on Teacher Education

and Professional Standards

June 5, 1967

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National Education Association

Washington, D. C.

TABLE OF CONTENTS

I. Summary.

II. Introduction: Background, Problem, and Purpose.

III. Participants and Procedures.

IV. The Symposium Discussion.

V. "Ideas for Research on Teacher Supply and Demand," by John K. Folger.

VI. "Problems and Developments in Staff Utilization and Their Implications for Educational Manpower," by Lloyd S. Michael.

VII. "New Careers and the Manpower Crisis in Education," by Arthur Pearl.

VIII. "Manpower and Public Policy," by Joseph Young.

IX. Conclusions, Implications, and Recommendations.

X. References.

Appendix A. List of Participants and Guests.

I. SUMMARY

Traditional concepts of education and the school are changing. Reflecting the waves of the social and technological revolution now flooding across the country, the school has accepted new responsibilities and extended its role in the community. The school now faces the problems of educating those whom it previously neglected and of making educable many whom it previously has not been encouraged to handle. The school in poverty areas is also becoming a community center for health, welfare, and recreational programs. Life in a technological society calls for improved and increased preparation for all. Public education is being extended both to the pre-kindergarten and the post-high-school age groups and the schools are handling a larger proportion of population than ever before.

To meet these changing needs, the public schools are changing manpower policies.

Increased specialization and new types of assignments are changing jobs in the schools. Efforts to improve the effectiveness of the professional staff have led to the development of para professional or supporting staff positions. These changes, as well as questions about present educational manpower, have heightened the need for new investigations of the manpower situation in education.

In 1966, the Bureau of Research of the U. S. Office of Education named educational manpower as a "critical problem" area. The National Commission on Teacher Education and Professional Standards of the National Education Association responded by suggesting as a starting point a symposium to clarify concepts and establish priorities for research in educational manpower over the next several years.

To fulfill this purpose, the TEPS Commission brought together six people of widely differing backgroundsand outlooks, all well qualified to discuss educational manpower problems. The participants were Chairman, Francis Keppel, Chairman of the Board of Directors, General Learning Corporation; George W. Denemark, Dean of the School of Education, University of Wisconsin-Milwaukee; John K. Folger, Director of the Commission on Human Resources and Advanced Education, National Academy of Science; Lloyd S. Michael, Superintendent, Evanston Township High School, Evanston, Illinois; Arthur Pearl, Professor of Education, University of Oregon; and Joseph Young, Assistant Dean, Harvard University Graduate School of Education.

All participants, except Mr. Keppel and Mr. Denemark, prepared working papers for distribution at the symposium. The group met at the National Education Association Building in Washington, D. C.,

on January 25-26, 1967, for a day and a half of intensive discussion. A number of specialists, including educators, researchers, and others having a special interest in educational manpower, attended and participated in the sessions (see Appendix A). Following the meetings, all but Mr. Denemark prepared a final paper for publication in this report.

Under Mr. Keppel's leadership, the symposium discussion began with an all-inclusive approach that speculated widely about manpower research possibilities. As they talked, the participants delineated some major areas, and at the end of the discussion, were able to agree on certain guidelines and priorities.

Mr. Folger and others described some necessary components of a sophisticated supply and demand model. Many of these components are listed in the NEA Research Division Report, Teacher Supply and Demand in Public Schools 1966 (12), but participants felt that even more comprehensive information was needed. They suggested a model which would specify areas of shortage and surplus, not only geographically but by subject and other details; which would take into account extraneous factors such as the general state of the economy; which would deal extensively with the nature of the teacher reserve; and which would make some predictions for the future.

Mr. Pearl proposed a series of experimental models to test the effectiveness of different methods of teacher training--one, the traditional method; another, a medical school approach of intensive study followed by gradually increasing responsibility in the classroom; and a third, an on-the-job training system supplemented where necessary by academic study.

The participants also discussed problems of gathering, analyzing, and disseminating data; innovations in role definition and the use of auxiliary staff; recruitment, working conditions, and rewards of teaching.

The participants recommended some guidelines for strategy: Research should be concentrated and coordinated in major areas rather than scattered in hundreds of unrelated projects. Projects should be strictly relevant to educational manpower issues. There is a need to organize and explain data already on hand. It might be desirable to focus funds in areas where the Federal Government already shows an interest. They stressed the importance of work on role definition.

At the conclusion of the discussion, the participants recommended, without an order of preference, the following areas for priority attention: role definition and auxiliary staff, the teacher reserve, and an analysis of the educational labor market.

An evaluation questionnaire, passed around among the guests at the final session, showed no consensus as to priority issues.

All participants, except Mr. Keppel and Mr. Denemark, then wrote papers elaborating on areas of their special interest. Mr. Michael discussed the counterplay of innovative and conservative forces in teaching and raised some cogent questions of staff utilization. Mr. Folger outlined the components and suggested some material for a sophisticated study of the educational labor market. Mr. Pearl advocated extensive testing of a completely new approach to staff training. Mr. Young called for the development of basic manpower research guides.

Based on its consideration of the discussions and the papers, the TEPS Commission drew up a series of conclusions, implications, and recommendations. It concluded that although educational manpower problems are intimately related to basic educational goals and policies--an area beyond the scope of manpower proper--there are nevertheless numerous research possibilities that can and ought to be explored. The Commission pointed out the failure of conventional research methods to meet the demands of the current educational manpower crisis and emphasized the importance of imaginative new ideas and approaches. It urged a forthright attention to basic educational problems and to assessable results which would have a clear potential for application in the schools.

The Commission recommended priority attention to research on the use of auxiliary staff and the changing role of the teacher. As a secondary but also major area, it named problems of recruitment and career choice, particularly recruitment of the highly gifted and of minority groups. As a third priority area, it suggested study of the nature of the teacher reserve.

The Commission stressed the importance of well-coordinated and well-designed projects, of a nature substantial enough to achieve usable results on the scale necessary to cope with the crisis in educational manpower. It suggested, as examples, a longitudinal study of a given staffing pattern in a single school district; a depth study of the teacher reserve; and establishment of demonstration models to test different methods of teacher training and staff utilization.

II. INTRODUCTION

Background and Problem

An unanticipated shortage of teachers throughout the country this year indicates that there is a serious need for research and remedial action on educational manpower--a need calling for different and more imaginative approaches to researching and solving the problems in this field. Studies providing useful information about the current situation have been conducted previously, primarily on aspects of supply and demand, but they have led to recommendations and actions based only on the status quo in school purposes and organization. The need now is to study educational manpower in the context of rapid educational change.

The whole concept of education and the school is changing. The isolation of the school from other community agencies and educational activities is being broken down. The task of the school, particularly in poverty areas, is being extended beyond traditional academic and vocational objectives. New agencies and institutions are being created to assume certain educational responsibilities. The limits of public responsibility for education are being pushed downward to ages three and four and upward through the first two post-high-school years. Rapid expansion of opportunities for continuing education of adults adds still another dimension which affects manpower needs. Educational technology is producing new problems and possiblities in school organization and staffing.

Of special significance to manpower problems, new concepts of staff utilization are being widely discussed and tested. The introduction of teacher aides and other auxiliary personnel into the schools is a fact with great implications for the future manpower needs in education.

If research and development activities in the educational manpower field are going to be fruitful and significant, they must be based on a broad concept of educational manpower which encompasses all teaching, supervisory and administrative, and related supportive activities in all types of public and private educational institutions and agencies.

The governing concept for research and development of activities in this field must also encompass problems of supply and demand, recruitment, selection, training and retraining, placement and assignment, job mobility, and staff utilization.

Purpose

Large sums of federal money are now being spent on public education. In the next three to five years, a substantial part of this money may be allocated for manpower research. There is a need to establish clear concepts and priorities to guide the research and development activities of those concerned with educational manpower.

As a starting point, the National Commission on Teacher Education and Professional Standards of the National Education Association organized a symposium whose purpose was to map a strategy for manpower research. By bringing together qualified persons familiar with educational problems, NCTEPS hoped to outline concepts on significant manpower problems and to identify a set of research priotities in educational manpower for the next three to five years. Publication of reports from the symposium will direct national attention to educational manpower problems and may elicit suggestions from many educators for research and development ideas.

III. PARTICIPANTS AND PROCEDURES

Considering the general disarray in the field of educational manpower, the TEPS Commission adopted a brainstorming approach. Six people of varying backgrounds and experience led the symposium discussion. Through working papers, discussions, and in position papers, they attempted to agree on areas of major importance, to clarify the various aspects of manpower reseach, and to suggest some priorities.

Participants

The six participants were:

Chairman: Francis Keppel, Chairman of the Board of Directors, General Learning Corporation, New York, New York.

Mr. Keppel was born in New York City. He received his A.B. from Harvard College in 1938, and in 1939, became an Assistant Dean at Harvard College. During World War II, he was secretary of the Joint Army and Navy Committee on Welfare and Recreation and also served in the U. S. Army. After the war, he returned to Harvard, and in 1948, was named Dean of the Graduate School of Education.

In 1962, Mr. Keppel was named U. S. Commissioner of Education, and in 1965, became Assistant Secretary of Health, Education, and Welfare (for Education). He left the Government in 1966 to assume his present position.

His recent book, The Necessary Revolution in American Education, deals with the major problems of today's public schools.

George W. Denemark, Dean of the School of Education, University of Wisconsin-Milwaukee.

Mr. Denemark, a native of Chicago, Illinois, received his B.A. in sociology from the University of Chicago in 1943 and an M.A. in social science from the same institution in 1947. He received an Ed.M. and Ed.D. from the University of Illinois in 1950 and 1956. During World War II, he was an officer in the U. S. Navy.

Mr. Denemark taught high school in Harvey, Illinois, from 1946 to 1948. Before taking his present position in 1958, he taught at the University of Illinois, Boston University, and the University of Maryland. From 1952 to 1956, he was Executive Secretary of the Association for Supervision and Curriculum Development, NEA.

Among his many scholarly and professional activities, Mr. Denemark is chairman-elect of the National Commission on Teacher

Education and Professional Standards.

John K. Folger, Director of the Commission on Human Resources and Advanced Education, National Academy of Science.

Mr. Folger, born in Atlanta, Georgia, received his A.B. from Emory University in 1943. After serving as an officer in the U. S. Navy during World War II, he received a Ph.D. in sociology from the University of North Carolina in 1951. He is at present on leave from his position as Dean of the Graduate School and Professor of Sociology at Florida State University.

Mr. Folger is a member of the Executive Committee of the Council of Graduate Schools and of the Technical Advisory Committee to the Census Bureau on the 1960 and 1970 Censuses of Population. The most recent of his numerous publications is a book, Education of the American Population, coauthored with Charles Nam.

Lloyd Michael, Superintendent, Evanston Township High School, Evanston, Illinois.

Mr. Michael, a native of Ohio, did his undergraduate work at Denison University and received his Ed.D. from New York University in 1941. He served as a teacher and administrator in Parkersburg, West Virginia, a lecturer at New York University, and a high school principal in Schenectady and Garden City, New York, and became Superintendent at Evanston Township High School in 1948.

Mr. Michael has served on the summer school faculties of New York University, University of Colorado, Columbia Teachers College, Harvard University, and Stanford University. He is a director and adviser to many educational groups and the author of several articles on education.

Arthur Pearl, Professor of Education, School of Education, University of Oregon.

Mr. Pearl was born in New York City. He received his B.A. in psychology from the University of California at Berkeley in 1947 and his M.A. and Ph.D. from the same institution in 1949 and 1960. During World War II, he served in the U. S. Army.

Mr. Pearl has taught at Howard University, New York University, and Los Angeles State College. He has done research for Howard University, New York State Division for Youth, California Department of Public Health, California State Department of Corrections, and has served on the California Governor's Special Study Commission on Narcotics.

His recent book (written with Frank Riessman), New Careers for the Poor, explains in detail some of his ideas on education.

Joseph Young, Assistant Dean and Lecturer, Graduate School of Education, Harvard University.

Mr. Young was born in Providence, Rhode Island. He took his B.Ed. degree from Rhode Island College in 1943 and received an Ed.M. from Harvard University in 1954. He served as an officer in the U. S. Navy during World War II and in the Korean War.

In addition to his present post, Mr. Young was Executive Secretary of the Rhode Island Institute of Instruction (the predecessor of the Rhode Island Education Association) from 1949 to 1951. He is a member of the American Association of School Personnel Administrators.

Procedures

Four of the participants (Mr. Young, Mr. Michael, Mr. Folger, and Mr. Pearl) prepared brief working papers in advance of the symposium. These papers were circulated to all participants beforehand and passed out to guests as they arrived for the discussions. (See Appendix A for a complete list of participants and guests.)

The symposium discussions were spread over a day and a half. The first session, in the auditorium of the National Education Association building, opened at 2:00 p.m. on January 25, 1967. Don Davies, Executive Secretary of the National Commission on Teacher Education and Professional Standards, explained the purpose of the meeting. David S. Bushnell, Director of the Division of Adult and Vocational Research, U. S. Office of Education, and the Symposium Chairman, Francis Keppel, also made introductory remarks.

Passing over a formal presentation of the working papers, the participants began a discussion and elaboration of the key ideas presented in the papers. At 3:30 p.m., the participants and guests split up into small groups for a more informal exchange of views; after an hour, chairmen from each group reported on the group discussions to the whole gathering; at 5:00 p.m. the public session adjourned until the next morning.

At 6:30 that evening, however, the participants met and resumed intensive discussion over the dinner table in a completely informal atmosphere. They arrived at certain agreements which constituted the starting point for the next day's public discussion.

The meeting on January 26 opened with a general session at 9:00 a.m. in the NEA auditorium. At 10:30 the gathering again broke up into small groups, this time to focus on establishing priorities for research possibilities which had previously been mentioned. At 11:30 a.m., the groups again merged and heard reports from the group chairmen recommending priorities. The public proceedings ended at 1:00 p.m. after a final brief general discussion.

The participants, however, with the exception of Mr. Pearl, met at lunch to attempt a further organization of their ideas, and at 2:00 p.m., they presented an oral summary of their position to Mr. Bushnell.

After the symposium discussions Mr. Young, Mr. Michael, Mr. Folger, and Mr. Pearl wrote papers embodying their personal ideas as to research priorities. These papers are included in this report.

Using the discussion and papers as a basis, the TEPS Commission drew conclusions and made its recommendations for priorities in research on educational manpower.

IV. THE SYMPOSIUM DISCUSSION

Discussion ranged for a day and a half through many aspects of educational manpower. In his introductory remarks, Mr. Bushnell explained that manpower had been identified by the Bureau of Research in the Office of Education as a critical problem area, Mr. Bushnell said he hoped the symposium would result in a "rather clear-cut statement of what the critical areas are" in the educational manpower scene. This kind of statement would lead to proposals and appropriations of funds for research in the field.

The participants spent the first hours of discussion exploring and naming various areas and aspects of educational manpower which they felt should be researched. They then speculated about research possibilities, seeking guidelines, tactics, or other principles that would help clarify the situation. Finally, they attempted to assign some order of priority to the various research possibilities. The first part of the symposium, therefore, was as all-inclusive as possible, the second was marked by a limitation and arrangement of suggestions, and the last step was to draw general conclusions from what had been said.

It was agreed early in the symposium that establishment of basic educational goals was a necessary prerequisite to training teachers and therefore a prime precondition for a coherent manpower program. The establishment of such goals, however, was clearly beyond the range of the expressed purpose of the symposium and it was therefore not pursued.

A Statistical Model

The need for an improved statistical model for describing and predicting educational manpower needs was discussed. Mr. Folger opened the subject by pointing out that a model is a very abstract representation of reality. It can enable us to make reasonably accurate predictions about future events only if the assumptions and variables used in constructing it do, in fact, turn out to be correct as the future unfolds.

An adequate teacher supply and demand model must take into account much more than the number of people having teacher's certificates and the number of openings for teachers. Ideas mentioned in the symposium were:

1) The teacher shortage is selective. An improved model must identify exactly the areas of shortage and surplus--whether they are in subject matter, geographical, or economic areas.

2) Many social and economic factors affect supply and demand. "Stock-and-flow" aspects of manpower must be considered. For example, in a "tight-money" economy, graduate students might find it difficult to finance further education and might turn to teaching as an interim occupation. The war in Viet Nam affects the distribution of federal money. The possibility of changes in their draft status might affect young men's decisions about whether or not to enter teaching.

3) There is an unexplored pool of qualified persons who are not presently employed in teaching. This teacher reserve might consist of teachers who have temporarily withdrawn for further education, because of motherhood, or for other reasons. They might be exceptionally well qualified or poorly qualified. Information is needed about the number, skills, and attitudes of these people, particularly whether they plan to return to teaching and whether their return should be encouraged.

4) The location of the supply and demand must be considered. In some areas where there is a pronounced shortage of teachers, the mobility of the supply is a critical factor. Must "indigenous" teachers be trained, or is there a mobile group of teachers which can be attracted?

5) A good model will involve some information about the near future. It should take note of changes in teacher qualifications. It should try to anticipate shortages or surpluses. It should allow for innovations which affect the role of the teacher.

6) A usable model must avoid absurd implications. Models must not oversimplify complex problems by presenting glib formulas. Mr. Michael cited as an instance the conclusions of a recent study on professionals in the schools, a compilation of the recommendations of different associations as to the proper representation of their various personnel on a per pupil basis. This study resulted in a recommendation that for 4,700 pupils who, in Mr. Michael's case, are all concentrated in one school, 14 librarians and 10 assistant principals were necessary.

These ideas, of course, are not of equal importance nor are they a complete list of the factors to be considered in such a study.

Gathering Information

The participants agreed that some information about teacher supply and demand is available. However, there were questions as to exactly what is known. Information is not centrally organized or systematically accessible to qualified inquirers. Mr. Folger and others stressed that exactly the right questions must be asked to build a reliable model.

Mr. Denemark suggested that manpower information might be a by-product of research projects now in progress, even though their primary objective was different. Although the idea of tacking funds and a manpower aspect to such projects was attractive in many ways, participants felt there would be great practical difficulties in making such arrangements.

Another possibility was to reexamine projects already completed in the light of new interests. In general, the participants agreed that combing through former projects was not likely to yield fruitful results.

William S. Graybeal gave a brief review of the NEA Research Report of Teacher Supply and Demand in Public Schools, 1966. This nineteenth annual study of the public school teacher manpower situation identifies the major components of a statistical model of teacher supply and demand and provides three types of estimates of the national status of the supply and demand for teachers in each major assignment area. The Trend Criterion Estimate shows the demand for new teachers to provide services for normal enrollment growth and normal replacement of teachers who leave the profession. The Adjusted Trend Criterion Estimate modifies the estimated demand based on the Trend Criterion to include the expected effect of the Elementary and Secondary Education Act. The Quality Criterion Estimate adds to the normal demand for new teachers, the number of new qualified teachers which would be needed to replace teachers with substandard qualifications, to reduce overcrowded classes, and to provide needed enlargement of instructional services.

The Experimental Model

Mr. Pearl advocated a different kind of research model--the experimental model. He suggested that educational manpower research should concentrate on producing good teachers. He would set up three different models, each representing a theory of teacher training. One would duplicate the present method. Another would be the medical school type in which the prospective teacher would have four years of academic preparation followed by internship and carefully supervised probation in classroom teaching before being rated

a master teacher. The third would be essentially on-the-job training starting while the aspiring teacher was still in high school. The prospective teacher would gain experience in theory and methods and would gradually assume greater responsibilities. An objective evaluation would show which method produced the best teachers.

Mr. Pearl emphasized the importance of experiments that are "transferable" and "generalizable"--that is, models which could be promulgated on a large scale if their value were proved by experiment.

Mr. Keppel and others pointed out that such experiments implied the intention to create widespread and comprehensive changes in every aspect of education. Mr. Pearl agreed, saying he felt such changes were necessary.

Mr. Young demurred on the grounds that experimentation with a view to changing national policy is extremely expensive. To be sound, it must be undertaken on a vast scale, tends to become faddish, and has on youngsters a drastic impact that must be carefully studied.

Analyzing and Disseminating Data

Mr. Michael questioned whether enough qualified people are available to analyze and evaluate competently data from statistical or experimental research. He pointed out that no amount of careful collection of data would be effective unless the data were properly organized and assessed.

Dissemination of data is another difficulty. Assuming that research produces some useful results, facilities would be needed for explaining the data and helping educators make good use of them. There is little point to any research unless the results can be used.

Role Definition and Auxiliary Staff

The discussion included consideration of the need for further research on the growing use of auxiliary staff, team teaching and interns, and the consequent changes in the role of the teacher.

Mr. Michael was concerned that, although these innovations are attracting widespread and increasing interest, the administrator must also face increasing pressure to "freeze" the teacher in his traditional role. He must agree to contracts which stipulate a rigid pupil-teacher ratio and which, in effect, exclude the introduction of aides or new staffing patterns.

Research on auxiliary staff would involve experimenting with the training of nonprofessional and paraprofessional personnel for many and varied functions--from "babysitting" chores like tying shoes, to clerical and bookkeeping tasks, to correcting papers and tutoring. Furthermore, teachers accustomed to isolation in the classroom and individual responsibility need training to use such assistance effectively.

Another possibility for the use of nonprofessional personnel is to provide links between the school and the community, assisting with the newly evolving social responsibilities of the school.

Student teachers, interns, and the spreading application of team teaching all affect the role of the teacher and his relation to his colleagues.

Recruitment, Working Conditions, and Rewards

Recruiting and keeping teachers on the job are clearly basic to any discussion of manpower problems. Participants and guests alike were concerned with the high drop-out rate from teaching. According to present statistics, new teachers are not entering the profession in numbers sufficient to compensate. The shortage may be selective, but it is real. Therefore research on why people enter teaching, what happens on the job to convince them to stay or leave, and the attractions of teaching seems an appropriate subject for study.

We do not really know why people choose to enter teaching, whether they are those who will make the best teachers, or how we might make the profession more attractive to top talent. Research to date shows that women who enter teaching tend to have above-average grades in college; the men, average records. Teaching seems to attract recruits during their college careers. More seniors than freshmen express an interest in teaching. The overwhelming majority of teachers are women; consequently, it is a standing concern of the profession to attract an increasing proportion of men.

Clearly, successful recruitment depends on describing accurately a job which sounds appealing to the very people who will find it a rewarding profession. Therefore process research or operations analysis, a study of what happens to a teacher on the job, is relevant to all parts of the teacher's career--why he enters, stays or leaves, and is or is not a good teacher.

Mr. Young emphasized that process studies as well as statistical models should have a longitudinal dimension to show how the process affects the teacher over a period of years. A

study of the experiences of the teacher on the job and what influences his decision to stay or leave is clearly of great value.

Another aspect of such research would be some information about dropouts and, it is hoped, some suggestions on facilitating a return for those who desire it. Dropouts may be a valuable reservoir. Preliminary evidence indicates that many of them are young women with small children, some of whom may return to teaching when their children are old enough to go to school. Perhaps refresher courses or changes in working arrangements, such as openings for part-time employment, will encourage and facilitate the return of many. Men with better grade averages are another group of dropouts. Where they go--whether into graduate school and then back to supervisory or administrative work, or into a completely different profession--is not known.

Strategy and Tactics

Having ranged the boundaries of educational manpower and research possibilities, the participants sought to outline a strategy for research.

They agreed on certain principles:

1) Assuming a substantial but limited amount of funds, they felt that research should be concentrated in a few major areas rather than scattered in hundreds of small grants for individual, unrelated, and probably uncoordinated, projects. The participants acknowledged that free-wheeling, small-scale research is sometimes very valuable, but they felt that under present circumstances the money would be better spent on larger, more comprehensive projects.

2) There is an adequate supply of what might be called gross data, that is, broad, general statistics about teaching. The participants decided that the limited funds they envisioned should not be devoted at top priority to information gathering as such. Sophisticated data related to comprehensive projects were not excluded from consideration.

3) However, there was unanimous agreement that present information is sometimes not well organized or explained, and not accessible for proper use. It might well be a most fruitful venture to allocate some research funds for coordinating, assessing, and making available manpower information from projects now in hand.

4) One possible rationale would be to focus funds in areas in which the federal government has already shown interest; for instance, the disadvantaged, the physically and mentally handicapped, and teacher training.

5) In view of the substantial changes taking place in role definition, manpower research ought to take note of the effects of these changes.

6) The participants did not think that measures of student learning were strictly relevant to manpower. Research in this area is not yet at a point where it can be tied to use of educational manpower; therefore, manpower studies of productivity measures are not now in order.

7) Manpower funds should not be spent for research involving a total reconstruction of the schools, the curriculum, and the teacher-training process. Such programs could well be explored under other research headings.

(Statements 6 and 7 were made in the absence of Mr. Pearl, who, as Mr. Keppel noted, would probably disagree with them.)

8) The policy of concentrating funds in a few large areas does not exclude reserving some funds for individual research proposals which might be unsolicited and unrelated to the larger programs.

Priorities

The final step was to establish, within the limits previously described, some possibilities for educational manpower research that should have high priority. Although the participants did not agree on a specific order of priority, they stated at the concluding session that the following topics deserved special consideration and support:

1) Redefinition of roles. Considering the widespread interest in auxiliary staff, and redeployment of the professional staff manpower research ought certainly to give major attention to these changes.

2) Study of the teacher reserve--the number, skills, attitudes, and experience of the pool of dropouts and the "retooling" they might need to bring them back to active practice.

3) Analysis of the educational labor market, on a continuing basis, to predict what schools would need what personnel. The object would be to use this information to influence the supply and distribution of personnel.

The participants sounded a caution that the Office of Education should be concerned about the availability of people adequately trained in economics, demography, psychology, and the other skills needed to deal with manpower problems.

Evaluation Questionnaire

At the final public session of the symposium, the TEPS staff passed out a questionnaire, which was completed and turned in by sixteen of about twenty-five people present.

The first question was: Has the discussion identified a clear key area or emergency issue which rates top priority? Eight respondents agreed with the participants that no top priority issue had been clearly identified. Two had no comment. In unconscious corroboration, no two of the six who identified a top priority named the same issue.

Question two: Have you ideas as to priorities which have not yet been expressed by the participants? Six people did have ideas, but only four stated what their ideas were. One listed local operations analysis as a priority area; the second, emphasis on pre-service education of professional and paraprofessional personnel; the third, development of educational statesmen to disemminate research results; and the fourth, the importance of asking the right questions on surveys.

Question three: Have you a suggestion for exploration of manpower priorities? Two respondents answered no, and two had no comment. Twelve had suggestions: four were interested in revising teacher training; three felt that further exploratory discussion was in order; one each was interested in operations analysis, retraining teachers and regaining dropouts, methods for implementing discoveries, making inner city teaching attractive to competent people, and the impact of educational technology on manpower needs.

V. IDEAS FOR RESEARCH ON TEACHER SUPPLY AND DEMAND

John K. Folger

One way to identify important research problems that relate to the recruitment, retention, and improvement of the teaching profession is to develop a model of the factors influencing recruitment and retention. The gaps in information needed to use the model will suggest research problems. The model can be thought of as a quantitative representation of a theory of teacher career development, and it can include variables which help to define the quality as well as the quantity of teacher personnel.

The development of a model of the teacher supply and demand situation which includes estimates of the changing quality of the teaching profession is a long-range, complex research effort. A review of the existing literature on the characteristics of effective teachers, or of the research on the effects of different patterns of teacher utilization (such as team teaching, use of teacher aides, etc.) on student learning, suggests that a great deal more work is needed to provide useful measures of teaching competence that can be employed in a model of teacher recruitment and retention.

A number of research projects can be designed which will round out our understanding of the quantitative aspects of the teacher supply and demand model and which may provide useful estimates of some aspects of teacher quality. Within this more circumscribed framework of concentration on the quantitative aspects of teacher supply and demand and on approximations of quality variables, the following research suggestions are offered.

Useful information on the flow of personnel into teaching, their retention in teaching, and their career plans is available from a number of studies:

1) Teacher turnover and sources of supply of teachers was studied in Mason & Bain, Teacher Turnover in the Public Schools, 1957-58 (8), and Lindenfeld, Teacher Turnover in Public Elementary and Secondary Schools, 1959-60 (7). These studies highlighted the importance of the returning experienced teacher as an important source of supply. They also illustrated the high rates of gross turnover.

2) The 1966 Report of Teacher Supply and Demand by the NEA Research Division (12) provides a good review of available information about the numbers of new entrants to teaching from different sources, particularly from colleges and universities, and their relation to demand for teachers of different types.

3) The National Opinion Research Center and the Bureau of Social Science Research have made follow-up studies of college graduates which supplement the numerical information in the NEA surveys with information on the characteristics of entering teachers and their career plans. See: Two Years After the College Degree (3), and Trends in Career Plans and Activities of June 1961 College Graduates, Spaeth and Miller (15).

From these studies it is possible to identify some gaps in knowledge and suggest research to fill in the gaps. Since the Office of Education's National Center for Educational Statistics has the most ambitious plans for development of models of the teacher recruitment process, these studies might be viewed as a way of providing better information for that model-building activity.

Studies of Teachers in the Labor Reserve

A large potential supply of teachers exists among former teachers who have left the labor force, largely because of family responsibilities. Nearly all of the teachers in the labor reserve are married women, mostly with preschool age children (see Appendix A). While the 1960 census provided some estimates of the number and characteristics of teachers in the labor reserve, there is no good information on the possible timing of their return to teaching, nor do we have any reliable estimates of the strength of their interest in returning to teaching.

The ideal way to collect data about the teaching reserve would be through a mail-back questionnaire left as a part of a large sample survey of the population made by the Census Bureau. This would be expensive, however. A normal CPS survey has only about 50,000 households in the sample, and this would yield only about 150 teachers in the reserve in the preretirement ages. A sample of at least a thousand would seem to be needed; this would mean the addition of a question to one of the large samples (1,000,000-2,000,000 households) now being planned.

An alternative approach to a census-related survey would be to develop a roster of former teachers from a sample of school systems and use a mail questionnaire with a telephone interview follow-up of a nonrespondent subsample. A variant on this approach would use the teacher retirement lists as a sample framework for selecting inactive teachers. (This procedure would be biased, since the persons who withdraw their money from the retirement system and are dropped from the list would not be represented.)

Studies of the Requirements for Teachers To Implement New Legislation

The big increase in demand for teachers in the fall of 1966 appears to be largely the result of the Elementary and Secondary Education Act (see Tables 1 and 2), although other influences, such as increased draft calls, may have played some part in this year's tight labor market. A series of analyses could be developed which would identify specific program goals (such as extension of kindergartens and nursery schools to all children whose parents wished them to attend). The program goal could then be translated into numbers and qualifications of teachers required, and these requirements could be compared with projected supplies of teachers with the appropriate qualifications. Although this is a normal part of the planning process of government agencies, these studies would attempt to examine the relation of supply to demand in more detail than is usually possible and to identify important "investment" opportunities for the period 3-10 years in the future, as the nation enters a period when college-trained personnel for teaching are more available than they have been in the past decade.

Tables 1 and 2 make it clear that new programs which add as little as 2 to 4 percent to personnel budgets of the school systems of the nation in a single year can create serious short-run personnel problems, and that effective manpower planning will be very important in using additional funds wisely.

Studies of Local Teacher Markets

Information already available indicates that the labor market for elementary and secondary teachers is very complex. Some teachers are immobile and available only in a local labor market. Others are more flexible, but tend to remain within the state and region of their birth and education. (See Folger-Nam monograph, Education of the American Population (5).) A few move long distances for jobs, but the systematic national recruitment that characterizes college teacher labor markets is largely absent.

The study would focus on the sources of supply for teachers in a sample of school systems that represented metropolitan, other urban, and rural areas, and several levels of teacher compensation. School systems in the sample in each stratum would provide information on turnover, length of service of active teachers, and origins of teachers who entered the system. Entering teachers would also be surveyed to identify whether or not they considered other jobs, and if so, what factors affected their decisions. School system personnel directors, principals, and others involved in the employment of teachers would also be interviewed to identify the characteristics of teachers thought to be most desirable.

Table 1

Projected Demand for New Elementary and Secondary Teachers 1959-1974

(numbers in thousands)

Year	Demand Filled by: New College Graduates	Demand Filled by: Experienced Returnees	Total Demand	Enrollment Growth and New Programs	Replacement of Tchrs Leaving & Substandard Teachers
1959	116	38	154	49	105
1960	121	40	161	53	108
1961	124	42	166	53	113
1962	124	41	165	46	119
1963	142	48	190	69	121
164	136	46	182	56	126
1965	154	52	206	71	135
1966	185	63	247	107	140
1967	173	58	231	86	145
1968	160	53	213	64	149
1969	160	53	213	60	153
1970	155	52	207	50	157
1971	154	51	205	45	160
1972	148	50	198	35	163
1973	150	50	200	35	165
1974	152	50	202	35	167

Source: Projections of replacement needs from U. S. Office of Education Projections of Educational Statistics to 1974-75 (14). Enrollment growth projection from Commission on Human Resources, and O. E. estimates of the effects of the Elementary and Secondary Acts of 1965. Experienced returnees are projected at 25 percent of total demand.

Table 2

Ratio of Recent College Graduates Entering Teaching to Total Number of First-Level Degrees and Total Education Degrees 1959-1974

Year	Ratio of Graduates Entering Teaching to Total First-Level Degrees	Ratio of Graduates Entering Teaching to Bachelor of Education Degrees
1959	.32	1.32
1960	.33	1.34
1961	.33	1.33
1962	.32	1.28
1963	.34	1.38
1964	.29	1.20
1965	.30	1.29
1966	.35	1.52
1967	.31	1.37
1968	.25	1.07
1969	.22	1.00
1970	.21	.95
1971	.20	.94
1972	.18	.86
1973	.18	.84
1974	.17	.81

Source: Table 1 and projections of education degrees made for the Commission on Human Resources. Projections of education degrees assumes a decline in the percent of men receiving education degrees from 10 to 8.5 by 1975 and a decline in the percent of women getting degrees in education from 42 to 37 by 1975.

The information from this series of studies would permit development of a labor market model that could compare teacher characteristics with school system preferences for teachers. The effects of a larger or smaller supply of teachers with given characteristics on the hiring patterns of different school systems could be assessed. The studies of Becker ("Career of the Chicago Public School Teacher," Journal of Sociology (1); Mason (The Beginning Teacher (9)); Herriott and St. John (Social Class and the Urban School (6)); and other studies give a good deal of information about the characteristics of teachers in different school settings. They raise more questions than they answer about the mobility process and the probable consequences of various types of changes in either (a) teacher characteristics and numbers or (b) school system requirements for patterns of employment and shortage.

Study of Career Choices and the Entry to Teaching

The NEA statistics on entering teachers (p.18 of 1966 Supply and Demand Report (12)) show that almost 30 percent of the persons who are prepared for teaching do not begin to teach in the year following graduation. Some of these people will enter teaching later, either after working at something else for a year or after further study in graduate school. Follow-up studies of a sample of persons certified to teach who did not teach could give us a more complete picture of one of the major sources of variation in teaching supply, as well as indicate the conditions under which teachers with desirable characteristics might be attracted into teaching.

Prediction of Effectiveness of Entering Teachers

There have been a number of studies of small groups of teachers designed to assess effectiveness in teaching. On the basis of these studies, it should be possible to construct some indices of teacher effectiveness which could provide aggregate measures of the potential of entering teachers. For example:

(a) A measure of knowledge competence, based on aptitude score, grades, and knowledge of special teaching field.

(b) A measure of interest in teaching, based on responses to questions about career objectives, basic interests, criteria for a good job, etc.

(c) A measure of potential effectiveness in working with pupils, based on personality measures and/or ratings of performance in practice-teaching assignments.

None of the measures above may be very useful in predicting how an individual teacher will behave in a specific teaching assignment, but for purposes of assessing the distribution of teachers to different kinds of teaching situations, they may provide a useful starting point for building the quality dimension into teacher supply and demand studies.

A large sample (20,000 to 25,000) of college seniors prepared for teaching would be assessed on the variables (or other similar measures) described above. They would then be followed up for three years to see how they were distributed in the school system. (Did they concentrate themselves in suburban schools? Were the brighter teachers drawn out of the elementary and into the secondary schools?) If desired, the design could incorporate on-the-job ratings of teaching effectiveness as a means of validating the measures of teaching effectiveness. The final result would be a measure of the way in which some aspects of teacher quality are distributed through the school system.

The attached appendix gives a more detailed assessment of statistics on supply and demand.

Appendix A

Data Currently Available To Estimate Supply and Demand for Teachers

Data which will permit estimation of the parameters of the model come from several sources, which are indicated in the specific discussion below. The "demand" or estimated total size of the teaching profession for a given year is generated in the model by enrollment projections, to which a teacher-pupil ratio is applied.

1) Enrollment growth projections based on the most recent Census Bureau population projections indicate a total enrollment growth 1963-70, grades K-12, of 12.6 percent.[1] The Office of Education Projections of Educational Statistics to 1974-75(14) gives a growth rate for the same period of 11.4 percent. At the elementary level, the OE growth rate is 7.3 percent compared with 7.1-10.3 Folger-Nam range; at the secondary level, the OE is 23 percent versus 16.5-19.0 range for Folger-Nam. The difference between these projections does not introduce a large amount of variation into the projections of teacher demand; the maximum difference amounts to only about 6,000 teachers a year at the elementary level and 5,000 a year (in the other direction) at the high school level.

2) Effects of changes in teacher-pupil ratios. The Office of Education projects a continuing decline in the number of pupils per elementary teacher from the 1964 level of 27.8 pupils to 25.8 in 1973, a decline of a little over .2 of a pupil per year. This is consistent, although higher, than the decline experienced in 1959-64. Even if the decline were only half that projected by OE (to 26.8 by 1973), the total difference in size of the elementary teaching force would be 58 thousand by 1973, or a little over 6,000 teachers per year.

At the secondary level, an increase in the number of pupils per teacher from 21.4 to 22.1 is forecast in the next nine years. Although continued urbanization and school consolidation could have this effect, the ratio has been stable over the 1959-64 period, and there seems little reason to expect it to increase in the future.

The Office of Education projections of teachers needed are 24,000 less than they would be with a stable secondary teacher-pupil ratio; this amounts to only 3,000 teachers a year and is a small factor. An article by Maxine Stewart in the May 1964 issue of the Occupational Outlook Quarterly (16) used a constant teacher-pupil ratio in making projections of the need for public school teachers; she also concluded that small variations in the teacher-pupil ratio had little effect on total demand for teachers.

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[1] These projections were prepared for Folger and Nam, Education of the American Population (5).

Source of the Supply of Teachers

The main difficulty in estimating the number of teachers needed has been the failure to distinguish between a temporary and a permanent separation from teaching. This led to a serious overestimate of replacement needs in earlier supply and demand studies made by the NEA. Several studies have used a separation rate of 8.5 percent a year. In a stable population, a replacement rate of 8.5 percent would mean an average teaching career of 11.8 years. The NEA survey in 1960 found an average career length of 13.6 years; if the size of the teaching profession were stable this would be higher, probably 15-16 years. Office of Education surveys gave separation from teaching rates of 10.9 percent in 1957-58 and 8.1 percent in 1959-60. These surveys were based on replies to a mail questionnaire sent to about 2,150 school districts; replies were received from about 1,900,or about 6 percent of all the school districts in the United States. The surveys were carefully done and provide the best sample survey evidence available about teacher turnover (7,8). They give the following figures:

	Total		Elementary		Secondary	
	1959-60	1957-58	1959-60	1957-58	1959-60	1957-58
Separation from teaching	8.1	10.9	8.1	11.2	8.0	10.4
Less Reentries	-3.9	-4.5	-4.0	-4.8	-3.6	-4.1
Net Separation Rate	4.2	6.4	4.1	6.4	4.4	6.3

The first line of the table above gives the separations from teaching for all reasons, deaths, retirements, and child-rearing and other jobs. It includes people leaving teaching permanently, those who are leaving with definite plans to return, and those who are undecided about returning. The second line above ("Reentries") indicates the experienced teachers who have returned to teaching from other jobs, from school, or from family duties at home. The third line ("Net Separation Rate") indicates the number of persons who have to be recruited from persons who have not taught before. It represents the demand for new teachers for replacement purposes. When this group is added to the new teachers for enrollment growth and for any changes in the teacher-pupil ratio or replacement of substandard teachers, the total requirements for new entrants to the profession are included.

The separation rate can be divided into temporary and permanent components. Death and retirement are permanent losses. As Table A shows, both death and retirement rates will rise in the 1960's because,on the average, teachers are getting older. The average age of women teachers in 1940 was 34 years; by 1960 it had increased to 44 years.

For males, there will be an estimated loss of about 57,000 persons during the decade from death or retirement, an annual need for replacements of 5,700 persons. For women there will be an estimated loss of 262,000 persons from death and retirement during the decade; an annual need for about 26,000 persons. Women teachers are about 8.5 years older on the average then men teachers, and they are more often the secondary earner in the family. These two factors probably account for their higher retirement rates. The increased rate will have relatively little impact on increasing demand, however, since losses from deaths and retirements combined are less than 2 percent a year for women and only about 1.1 percent for men.

Promotions are also likely to be permanent. Continuation of the promotion rates found in the 1959-60 OE study would produce about 73,300 promotions between 1960 and 1970; this would be sufficient to provide for an estimated increase of 59,000 in nonteaching instructional staff between 1960 and 1970 and replace about 10 percent of the administrators in service in 1960. Since some of the nonteaching staff (guidance and counselling personnel, for example) are likely to be recruited directly from college, this rate of promotion may be adequate for the 1960-70 decade if it continues at the 1960 rate.

It is not clear that persons dismissed for unsatisfactory performance by one school system will not be hired by others. In a competitive market with a shortage of teachers, some persons dismissed are likely to be rehired; in a market with a surplus of candidates, this is much less likely to occur. For purposes of a maximum estimate of demand it will be assumed that all teachers dismissed leave teaching permanently. Continuation of the 1959-60 rates of dismissal for the 1960-70 period would mean that 122,000 men and 188,000 women would be dismissed during the decade, an annual need for about 31,000 teachers. The total separations likely to be permanent are indicated in Table A-2.

If we express these losses as rates per thousand, they amound to 4.42 for men and 3.54 for women. Only the death and retirement part of these separation rates is likely to be stable; the others are likely to exhibit considerable annual fluctuation.

Rates of leave taking were about 6.7 per thousand for men in 1959-60, and about 4.6 per thousand returned from leave. For women, the respective rates were 13.7 and 10.3, suggesting that for each sex only two-thirds to three-fourths of the people who went on leave actually returned to their orginal school system. Others may have left teaching or transferred to another school system. In the absence of definitive information about this group, it will be assumed

Table A-1
Estimates of Death and Retirement Rates
from Census Age Distribution of Teachers

(Rates per 1000)

	Average Rates 1960-70	1959-60 USOE Survey
Males Ret.	7.1	6.0
Males Death	4.2	2.6
Total	11.3	8.6
Females Ret.	15.6	13.7
Females Death	3.6	2.1
Total	19.2	15.8

Source: Death rates are U. S. age-specific 1962 rates. Age distribution is for all teachers below college in 1960 from the census. Retirement rates are estimated from age-specific attrition--less mortality from the census age cohorts 50 and over in 1960. These rates are higher than the death and retirement rates in the 1959-60 USOE survey and will mean 4,000 more women replacements and 1,400 more men replacements each year than would be required by the retirement and death rates of the 1959-60 OE study.

Table A-2

Estimated Average Annual Permanent Losses from Teaching, 1960-70

	Both Sexes	Males	Females
Death and Retirement	31,900	5,700	26,200
Promotion to Administrator	7,300	4,200	3,100
Dismissals	31,000	12,200	18,800
Total	70,200	22,100	48,100

that 15 percent of the persons going on leave actually left teaching and that the remainder returned to teaching either at their original school system or somewhere else. Over the decade, this would produce an annual replacement need of about 2,700 for women and 500 for men. This is a very small number. Since we assume that returns from leave were 85 percent of persons beginning leave for the decade as a whole, and since detailed data on entrants to leave and returns from leave are unavailable, only the small estimates above will be used.

If the estimates of permanent separations discussed above are subtracted from the total separation rate, we have an estimate of "other separations." This residual category is the heart of the problem of estimation of teacher demand. The "other separation" rates from the 1959-60 OE study were male 15.3 per thousand a year, female 42.6 per thousand, total 34.5 per thousand. This represents over two-thirds of all separations and is obviously the most important part of the replacement problem.

Some of the "other separations" are likely to reenter teaching and others will be permanent losses. In 1959-60, the reentry rate, exclusive of reentries from leave, was 25.1 per thousand for males and 32.3 per thousand for females. The base for these rates is the total teaching force at the end of the period, not the pool of inactive teachers. The latter would be theoretically more desirable, but is unavailable. When "other separations" in 1959-60 are compared with reentries, there was a net gain for men and a net loss for women:

	Women	Men	Both
Separation Rate	42.6	15.3	34.5
Reentry Rate	32.3	25.1	30.1
Net Rate	-10.3	9.8	-4.4

Obviously, over a number of years the reentry rate cannot exceed the separation rate. Estimates of the values of the "other separation" rate and the reentry rate exclusive of those returning from leave can also be made from the 1957-58 Office of Education study. This gives separation rate 70.8, reentry rate 35.2, net loss rate -35.6, about eight times as large as the 1959-60 figure. Since these rates for both 1957-58 and 1959-60 are residuals, they reflect any errors of measurement of other categories as well. If we average the figures for 1957-58 and 1959-60, we get an estimated rate of 20 per thousand separations in excess of losses. This rate would mean a need for 376,000 teachers between 1960 and 1970. It is obvious that a more adequate estimate of the net loss from other separations is nec-

essary. If the 1959-60 rate (which is probably lower than can normally be expected) of 4.4 per thousand net loss were applied, 83,000 rather than 376,000 replacement teachers for other separations would be needed in the 1960-70 decade. If the 35.6 rate estimated for 1957-58 were applied, 670,000 teachers would be needed. The difference between the high and low estimates is almost 600,000 teachers.

There is one other source of information about the characteristics of the persons leaving teaching. The 1960 census provided information about the labor reserve, the proportion of persons who have worked during the preceding ten years but who are no longer working or looking for work. The labor reserve excludes the teachers who left teaching to take other jobs; thus there are almost no male teachers in the labor reserve. Census figures for women teachers in the labor reserve are given in Table A-3. The total number of teachers in the labor reserve who last worked in 1959 was 118,000, more than the 110,000 separations indicated by the separation rates of the 1959-60 OE study. Since we know that some teachers who quit took other jobs and thus would not be in the labor reserve, the actual difference between the Office of Education figure and the census figure is even larger. Much of this difference may be due to the inclusion of student teachers and temporary substitute teachers in the census figures.

The census figures show that most of the women under 35 who are in the labor reserve are married and have preschool-age children. For the group of teachers in the labor reserve that have been out of teaching more than one year, about 85 percent have children under 6. This indicates that nearly all the women who are in the labor reserve are there because they have family responsibilities.

Other data from an NEA national sample survey[2] indicate that the average married woman teacher who has a break in teaching service is out of teaching for 9 years; this would be consistent with time required to raise two children (the modal family size for teachers with children) until the younger was in school. Although no precise computation is possible, the average amount of time in the labor reserve for teachers without small children is probably less than one year. This is also consistent with the NEA survey in 1960-61, which found that the average break for men and single women was only one year.

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[2] The American Public School Teacher 1960-61 (11).

For teachers under 45, where most of the potential returnees are located, the number in the labor reserve who last taught in 1959 was 80 thousand; the annual average for those who last taught in 1950-54 was 14 thousand. With this limited information, it is not possible to make very precise determinations, but if the estimated number of substitute teachers is subtracted from the 1959 figures, the result suggests that at least half the persons who leave teaching eventually return. If information were available on the number of years of teaching and the number of years that a teaching career had been interrupted forasample of teachers cross-classified by age, sex, and marital status, it would be easier to interpret the information in the census and in the Office of Education teacher turnover studies. Unfortunately, the 1960-61 NEA survey data are from a sample too small to permit detailed cross-tabulations.

Summary

The data available for use in the model can be summarized as follows:

Demand for Teachers: Demand arising from changes in enrollment can be projected quite accurately for at least a decade into the future. Trend changes in pupil teacher ratios, which reflect basic patterns of financing the school systems, have also changed very little in the last decade and can probably be projected quite accurately.

The development of new programs backed by major new sources of financing (such as Head Start of the Office of Economic Opportunity and the programs financed by the Elementary and Secondary Education Act of 1965) will be the most difficult part of future demand projections. The effect of these new programs can be estimated from their overall funding level and the proportion of funds to be spent for professional personnel. Estimates of need for teachers if unlimited funds were available give one rather impractical way of estimating the upper limits of demand.

Losses and Replacement Requirements: Death rates, retirement rates for persons over 50, and promotion rates can probably be estimated by the techniques described previously with sufficient accuracy for projections for the next decade. These influences in any case are going to be less important than the other separations. The other separation rates have fluctuated considerably in the two studies reported by the Office of Education. Even if the overall rate can be estimated accurately, it is important to be able to subdivide it into a component that is likely to return to teaching and a component that has a low probability of ever teaching again.

Table A-3

Characteristics of Women Teachers
in the Labor Reserve, 1960

Group and Year Last Worked	Age of Women in 1960				
	14-24	25-34	35-44	45-64	Over 65
Total	40,485	195,241	77,298	89,255	62,536
1960	8,989	19,698	15,317	18,255	4,313
1959	19,362	44,036	17,742	24,895	12,066
1955-58	11,496	78,622	22,185	27,350	24,571
1950-54	638	52,885	22,054	18,755	21,586
With Four or More Years of College					
Total	20,116	143,214	50,368	-	-
1960	5,324	13,885	9,355	-	-
1959	9,996	32,870	11,284	-	-
1955-58	4,574	60,586	14,159	-	-
1950-54	222	35,873	15,570	-	-
With Own Children Under 6					
Total	-	156,244	-	-	-
1960	-	11,765	-	-	-
1959	-	31,477	-	=	-
1955-58	-	67,672	-	-	-
1950-54	-	45,330	-	-	-

Source: U. S. Census of Population 1960, Characteristics of Teachers, PD (2) 7D, Tables 13 and 14.

The main basis that exists for identifying potential returnees is the family status of the teachers. We know very little about the characteristics of persons who have left teaching; but the limited information that is available suggests that most of the persons who leave teaching and do not take other jobs are married women teachers with young children. Marriage rates and birth rates of teachers would give one means of estimating the separations for family reasons.

VI. PROBLEMS AND DEVELOPMENTS IN STAFF UTILITATION AND THEIR IMPLICATIONS FOR EDUCATIONAL MANPOWER

Lloyd S. Michael

The scarcity of qualified teachers continues. A recent New York Times survey reveals "the most serious shortage" of teachers since the 1940's. According to an NEA study, the 1966 supply of teacher applicants was smaller than the 1965 supply, while the demand for teachers was considerably greater than in 1965. The shortage is due in part to the competition of federal programs and the increased attractiveness of positions in business and industry.

Important decisions about the changing tasks and responsibilities of our schools and their implications for educational manpower must be faced. The nation's schools are charged with the responsibility of providing an education for greatly increased proportions of our population for more years of schooling and at far higher levels of skill, knowledge, and understanding.

Today, one-fourth of the American people are in school. A few years hence, one-third will be there. Programs of public preschool education will soon be provided for the majority of four- and five-year-olds and for an increasing number of three-year-old children. Nearly all youth, instead of the present 70 percent, will complete high school. At least two-thirds of the youth population will attend college or receive other formal training beyond high school. Improved programs of continuing education will enroll a much higher proportion of adults. Manpower needs to staff these and other new and expanded educational programs and services will become more critical.

Changing staffing patterns in school districts are adding other dimensions to the manpower problem. One staffing pattern measurement is the number of all professionals per 1,000 pupils. According to McKenna,[1] ranges for public schools in the United States run from about 25 professionals per 1,000 pupils to more than 90 professionals for the same number of pupils. Probably 45 professionals per 1,000 pupil units represent the average for the country today. In a national group of schools affiliated with the Associated Public School Systems, an average of about four professionals per 1,000 pupil units were added between 1955 and 1962. It can be predicted that a majority of school districts will seek to achieve a standard of at least 65 professional employees within a decade. Of these 65 professionals, 50 will be classroom teachers and 15 will be specialists.

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[1]Bernard H. McKenna, Staffing the Schools (10)

The significant factors in this sizeable projected increase in the ratio of professional employees to students are (1) continued pressure to reduce class size, (2) specialization in teaching positions, (3) proliferation of non-teacher professionals, (4) demand to increase the effectiveness of individualization of instruction, and (5) new professionalism and autonomy in teacher ranks.

The Commission on the Experimental Study of the Utilization of Staff in the Secondary School[2] recommended a novel staff structure. Based upon a school with 1,000 pupils, it was proposed that the staff would consist of 12 teacher specialists and 12 general teachers, or a total of 24-25 professional teachers in contrast to the 50 classroom teachers in the projected staffing pattern previously mentioned. In addition, the Commission proposed that there should be the equivalent of 12 instruction assistants, six clerical assistants, three general aides, and a comparable number of specialists.

The Commission in advocating its staffing structure strongly urged that professional work should be done by professionals and that other tasks should be done by assistants. Its proposals were not only aimed at improving organization and staffing in secondary schools but, more basically, at a reexamination of school functions and needs. Such reexamination included in its scope all the component parts of a school: its students, its teachers, its curriculum, and its facilities. Important innovations in team teaching, reorganization of instruction, and flexible scheduling soon emerged. There is evidence that these staffing patterns, with modifications appropriate to local needs, are being diffused at an accelerated rate among school systems.

The employment of instruction assistants, teacher aides, clerks, and other auxiliary personnel in schools increased sharply since 1960. The efforts of the Commission on Staff Utilization contributed significantly to this growth in the use of nonprofessionals. As reported recently in the Bank Street College study,[3] the wide range of pupil needs in changing communities calls for the use of school personnel of various socioeconomic backgrounds, including low-income workers, at various levels of training and job assignment.

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[2]J. Lloyd Trump, "Images of the Future" (17)

[3]Garda W. Bowman and Gordon J. Klopf, Auxiliary School Personnel: Their Roles, Training, and Institutionalization (12)

A study conducted by the Institute of Administrative Research[4] showed that the number of clerical personnel per 1,000 pupils among a group of school districts ranged from 3.19 to 11.09 clerks. The median number of clericals per 1,000 pupils was 5.79. It can be predicted that a majority of school districts will seek to achieve a standard of 10 clerical employees per 1,000 pupil units within a decade.

These trends and developments in the allocation, utilization, and administration of our school personnel mandate certain research and development activities designed to lessen the manpower needs of most of our school systems.

Currently there are no acceptable standards for defining the "best" staffing pattern for a school district. Staffing allocations are influenced generally by many variables. School districts must develop goals of educationalquality. Evidence is needed to show the effects of various staffing patterns upon the achievement of these quality goals. How many professional staff members in relation to a given number of students are needed and how shall they be deployed? What is the desirable ratio between classroom teachers and specialists with evaluative and supportive functions? Can the number of professional personnel be significantly reduced as a result of the reorganization of administrative and staffing patterns or through the utilization of material aids to instruction?

Rising teacher demand for collective action on many educational matters is another factor in the manpower problem. Davies[5] states that a spirit of aggressiveness, militancy, dissatisfaction, and self-confidence has swept across the ranks of the profession. He identifies as one of the chief demands, "We want to have a more important part in managing our own affairs, in making decisions about what shall be taught, how, when, by whom, and under what conditions."

Professional negotiation in an increasing number of school districts includes more than requests for increased salaries and better working conditions. It maintains that teachers have the right and responsibility to participate and share in the development of educational policy and procedures that influence the program of the school

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[4]McKenna, op. cit., p. 48 (10)

[5]Don Davies' Speech, Annual Meeting, American Association of School Administrators, Atlantic City, N. J., February 15, 1965 (4)

system. A recently adopted negotiation agreement in a New York school district clearly establishes a new role for the teacher. The agreement states, "The...Teacher Association shall discuss, participate in, and/or negotiate on the following matters of mutual concern: recruitment of teachers, teacher turnover, in-service training, teaching assignments, teaching conditions, class size, curriculum, district planning, budget preparation, school calendar, salaries, communications, protection of teachers, leaves of absence, general absence provisions, sabbatical leave and other fringe benefits, dues deductions, grievance procedures, and other matters which affect the quality of the education program and the morale of the teaching staff." This board of education agreed that their teachers were qualified to make significant contributions to educational matters in the district and should assist in the development of policy and program.

Teacher demands, with or without negotiation agreements, are tending to support a traditional and less useful model of the school. Strong pressures are being exercised in many school districts to narrow and regiment the task of teachers, their compensation, class size, teacher load, and other working conditions. The effect of these demands and pressures may be seriously to deter the diffusion of promising innovations in the allocation and utilization of all types of school personnel. This could contribute significantly to the teacher shortage problem. Careful experimentation with various staffing patterns and differing roles for teachers and accurate evaluation and dissemination of results may prevent a serious confrontation between those who support adherence to traditional models of staff utilization and those who advocate innovative practices in the development of school personnel.

There is need for extended study and development of improved personnel policies for professional workers. There should be experimentation in several major areas of teacher assignment, teaching performance, and compensation.

Current employment policies offer great security but too little opportunity for recognition and salary differentiation. There should be experimental open-ended systems for teachers, in which the limits of teaching tasks are changeable, the measures of productivity are variable, and in which policies for payment and recognition bear a close relationship to changes in the dimensions of the teaching task. Salary policies should be formulated that recognize differences in the roles of teachers. Innovative personnel policies should encourage the advancement of teachers in positions of responsibility with commensurate salary increments but without decreasing their teaching roles. Advancement for professional personnel in the schools should not be away from students.

An analysis of teacher work loads should be made in school systems that deploy their staff allotments in varying patterns. What guidelines will be most successful in accomplishing the established goals of the school? What are the different bases for staffing a school under such guidelines? As the teacher's role changes in the light of different teaching tasks and differentiated staffing, what changes in salary policies would be useful? Will teaching conditions, such as class size, teaching load, space and quality of facilities, length of school year, length of work day, pleasant or difficult pupils, administrative attitudes, professional growth opportunities, and nonclassroom duties, continue to be major factors in enlisting and keeping able teachers?

Studies in other areas of personnel policy should include an analysis of fringe benefits and their effects on staffing, teacher recruitment and retention, and the relationship of educational practice to trends in other vocations. Field studies should be undertaken to develop more useful and effective measures of teacher productivity and reliable indices of teacher load. Research and evaluation should also be funded to test the validity and effectiveness of generally accepted bases of salary schedules.

Attention must be given to development and research activities related to new modes of instruction. There is need to examine the status of large-group instruction, small-group discussion, and independent study. Different purposes in instruction require varied class organizations, novel staffing arrangements, and new teaching skills. Three basic questions that bear on content and staffing needs were identified by the Commission on Staff Utilization.[6] These questions, which need further examination in several field situations, are: (1) What instructional content and purposes can students of differing ability levels learn and accomplish largely for themselves if they have the time, the space, the desire, and special assistants to help them do so? (2) What content and purposes require motivation, explanation, demonstration, or other types of presentation by a competent teacher either physically present or by means of television, films, or recordings, or programmed instruction devices? and (3) What content and purposes require personal interaction among students and between students and a physically present teacher? The answers to these questions suggest student groupings different in size and composition from those found in conventional schools. They further indicate that teachers probably do not need to be in physical confrontation with students so much of the school day. Research activities are needed in schools where there are planned relationships among new models of staffing, curriculum content, and instructional technology.

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[6] J. Lloyd Trump, "Rx Ingredients of Change" (18)

Efforts must be made to clarify and redefine the professional role of teachers. Professional work should be done by professionals. What tasks now done by teachers need to be done by well-trained, experienced professional workers? What steps can be taken in schools to provide teachers with more time during the school day to prepare better, to keep up to date, to confer with colleagues, to work as needed with individual students, and to improve pupil evaluation techniques and reporting? How can the techniques of job analysis be applied to teachers in order to determine what duties they now perform could be done more economically and efficiently by nonprofessional persons with lesser or different kinds of training? Because of the omnibus role of teachers and the generally accepted standards of teaching load, it is difficult for teachers to find the time and energy to do those tasks that are characteristic of professional workers. Schools should be organized so that teachers would make maximum use of their individual abilities in differentiated roles as professionals.

Schools must determine what professionals must do and what auxiliary personnel can do. What positions should be included in a classification of paraprofessional personnel in public education? The Commission on Staff Utilization identified three groups of auxiliary personnel as follows: (1) instruction assistants--a group of technicians selected on the bases of training and experience to do specific parts of the teaching job, (2) clerks-- to do routine duties which are part of the instructional program, and (3) general aides-- to supervise students in the large areas of the building and on the school grounds. Other categories could include aides to professional specialists, audio-visual technicians, and student assistants. What are the role specifications and prerogatives of each group of employees in the auxiliary group? What preservice and in-service training programs are recommended?

There are other needed areas of experimentation and research if the utilization of nonprofessional persons is to be of optimum effectiveness to school districts and if it is to have some positive effect on relieving the teacher shortage. If a school system decides to use auxiliary workers, the program must be incorporated as an integral part of the school district. What can be learned from the use of auxiliary personnel, particularly student help, under the auspices of the National Youth Administration in the early forties? Was the purpose then solely to provide part-time employment for needy youth? The implications of greater utilization of auxiliary personnel for class size, teacher load, staff deployment, role differentiation, and pupil-teacher relationship should be carefully evaluated and reported. Personnel policies and practices should be established for these auxiliary groups. Provision should be made for salaries; work load; contractual rights and

obligations, including tenure, leave, promotion, and retirement; legal responsibility for pupils; and relationships to professional workers and associations. It is imperative that this new source of educational manpower not only lessen the teacher shortage, but through the effective use of abilities, contribute to the improvement of education.

The quality and quantity of personnel, both professional and nonprofessional, are vital to the operation of good schools. It is essential that we continue to search for the highest dividends on our investment in people.

VII. NEW CAREERS AND THE MANPOWER CRISIS IN EDUCATION

Arthur Pearl

The lack of adequate manpower for education is creating concern today, and it is likely to become a calamitous problem tomorrow, unless we act resolutely, systematically, and rationally. And yet, there is no indication that we are prepared to act at all! One reason for the incapacity to resolve chronic problems in education is the posture assumed by the researcher, who either purges himself of any contamination with reality through immersion in "pure" science or becomes subservient to the establishment. Thus, research in education is reduced to trivia.

Research directed to meeting manpower needs in education becomes either population projections or studies designed to package more efficiently what currently passes for education. The researcher becomes concerned with developing models that increase pupil-teacher ratio without sacrificing present standards of quality (further defaulting educational responsibility to the machine.) Or he develops screening systems to insure that persons trained for teaching enter or remain in the trade. (He hasn't yet suggested that sterilization be required of all prospective female teachers:) Or, he becomes involved in social engineering by developing systems which allow less trained personnel to assume some functions heretofore restricted to fully qualified professionals (without first considering if these activities should be done at all). All this researching is offered with the assumption that education, as presently structured, is essentially sound. Nothing could be further from the truth.

Education today is a mess. Some students fare somewhat better than others. Some, particularly the poor, have an inordinately difficult time in school; but no significant segment of the student population is served well. To continue to generate manpower plans for a system, that fails to do its job, without first carefully scrutinizing that system makes little sense. Before manpower needs can be considered, the purposes of education must be reviewed. Educational goals are not constant. The purpose of an educational system must keep pace with the developments that impinge upon education. The schools' goals must be consistent with the social, economic, political, and technological growth of a society. The world today makes unique demands upon education, and the schools appear unable either to understand or respond to these demands. There are at least four major goals of education, and manpower planning must be done in the context of these goals.

The Goals of Education

Modern United States is technologically advanced and depends on a highly interdependent structure for its sustenance and growth. The future bodes more of the same, and this means that effective education of youth will be even more challenging tomorrow than it is today. Defining the goals of education may help clarify the challenges. To do an adequate job in education, the following must be accomplished:

1) Each student must have a wide range of choice of life career.

Basic to any concept of freedom is the range of occupational choice available to citizens. Evolutionary events have placed the school in a salient position in the matter of occupational choice. Not so many years ago, there were many avenues available to the inadequately educated. This is no longer true: unskilled labor is becoming obsolete; options for the poorly educated decline daily; and schools, rather than increasing options, tend to limit choice. Whenever a child is sorted into a "low-ability" track, his occupational choice is restricted. Whenever an adolescent is shunted into what is euphemistically called a vocational education, his occupational choice is restricted. In both instances, he is not prepared for the largest and fastest growing, the most prestigeful and highest paying occupations in our society. For these occupations, a college education is the entry requirement.

2) Each student must have skills necessary to be a citizen in a complicated democratic society.

Many factors conspire to force government into increasing importance. Population growth places new kinds of demands upon government. The same area of land must be shared by twice the number of people every 35 years. Technological development reduces this area in effective distance. It is now possible virtually to decimate the population in an hour's time. Technological development also makes possible greater government control over individual behavior.

Government will serve its citizens and not become repressive only if the school generates politically competent electorates. To become politically competent, students must have knowledge about democratic processes. They must know about the centuries of struggle for human rights. But knowledge attained from passive information exchange is not enough. Students must now only discuss the importance of a Bill of Rights, they must also experience rights. They must participate in meaningful judicial, legislative, and executive decision making. Training for democratic citizenship should be developmental. In the early grades, the experience will have to be guided,

but as the student attains sophistication, he should be delegated responsibility for management of the school community commensurate with his increased understanding.

The schools have never attained distinction as proving grounds for democratic citizenship. But bad as schools were in the past, they are even worse now. Increasingly repressive (particularly on the poor) and unable to deal effectively or justly with dissidence, schools bludgeon rather than instruct. Unable to perceive the monstrous irony of it all, schools attempt to program youth "to fit" rather than engendering in them the skills which would allow them to alter society. The school not only does not sanction opposition to the establishment, it is so arrogant in its power that no effort is made to be even <u>accountable</u> to students. Is it any wonder that, repeatedly, social psychologists have found that citizens will refuse to affix their signatures to a petition which requests support for the Bill of Rights because the message sounds suspiciously like "Communist propaganda?"

3) <u>Each student must become a culture carrier.</u>

The world is becoming increasingly interdependent. Technology changes the nature of human involvements from small informal organizations into large highly formalized relationships. This influence pervades every aspect of our existence. We live in a world of big business, big government and mass culture. Without adequate preparation for that world, man becomes overwhelmed. He is unable to cope adequately, and as a consequence of the intransigence of bureaucratic machinery, he is driven to depersonalization and alienation by the impotence of his condition. Education can offer an antidote for this state of affairs. Art, music, literature, history, and the study of science can enhance self-respect and social identity and assist in the development of the broader understanding that is essential for political competence.

Does the school instill an appreciation for learning qua learning? Hardly! Students get the message, "The grade is important, not the learning." "Soft courses" are deprecated. Often art and music courses become dumping grounds for "nonmotivated" students. Is it any wonder that the common denominator for cultural transmission is that offered on commercial television?*

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*The late comedian Fred Allen once commented that television was called a new medium because nothing on it was well done! Television has gotten older, but it is no better.

4) Each student must be helped to intrapersonal and interpersonal competence.

The school, by default, has become the primary socializing influence of our society. Technology has eroded the family influence: the family is unable to censor information or limit contact. The child is emancipated without the portfolio of skills necessary for an emancipated existence. The child of today knows more than previous generations, but he is allowed to do less. The school has to repair this condition, and it must provide the experiences and the knowledge that will enable its graduates to live with themselves and with others.

Are there any among us who would claim that we are doing an adequate job here? Examine some appalling statistics: crime and delinquency continue to increase; racial violence is on the rise; even students from "healthy" environments search for a sense of self in drugs; the high rate of alcoholism is a grim reminder of man's inability to live contentedly with himself; and the prevalence of divorce reveals a pervasive inability of modern man to live with others.

The school not only does not facilitate personal growth, it does just the opposite. The school is where many youth go to be "worked over." In the school, these students are humiliated and degraded. There they are told of their lack of worth. Only a rare few receive the gratification that comes with a sense of competence, a feeling of belongingness, and an opportunity to make a contribution to society.

Almost nothing that happens in school can be justified. The school limps along with simplistic and antiquated social organization. Students are forced into silly (and often grossly unfair) competition with their peers. The world outside the school functions interdependently. Competition, where it exists, pits massive organizations against each other. Within the bureaucratic entity, those who "get along" rise higher than those who strive to "get ahead." The school must "get with" that real world. There must be contact with outside systems; and if the school is to facilitate personal and social growth, school activity must simulate outside reality. The school must create relatively nonthreatening environments in which students learn not only to cope with demands of current organization but also are given the tools to make changes in that society whenever changes are needed.

The monumental task of providing manpower adequate in quantity and quality to attain the goals of education will require dedication of research activity unlike anything ever attempted by educational investigators. Such activity will require establishment of priorities.

Priorities of Research of Manpower Needs in Education

Charles Wilson, when Secretary of Defense, observed that "just because they call it research doesn't make it wonderful." Although he wasn't referring to education, he could have been. Much of the education research now conducted cannot be justified: it contributes neither to theory nor to practice. Appropriate research is accountable. It addresses salient issues; it starts with asking significant questions. All too often education researchers offer an answer (meticulously collected and analyzed data) with the hope that someone can come up with a question to go with that answer.

To be accountable, research in education manpower must provide answers to the following questions:

1) What are operational definitions of adequate education? How can career choice, citizen competence, cultural sophistication, and personal adequacy be measured?

2) How many persons, deployed in what manner, are needed to do an adequate job in education now? How many will be needed in 1970? 1985? 2000?

3) What are the skills, knowledges, and competencies needed by staff at different levels to do an adequate job? How much of manpower can be supplanted, without loss in service, by mechanical and technical devices?

4) What training shall staff receive? What models of training should be employed? What agencies should be involved in the training?

5) How can the public be convinced that <u>quality</u> education is a worthwhile investment of tax dollars?

6) How can a strategy of change be initiated so that innovations proved in demonstrations can be generalized throughout all of education?

All but the first of these questions fall under the rubric of "action research" or demonstration project (terms which in this paper will be used interchangeably); and it is my opinion that no true progress will be made in education unless top priority is given to this kind of research. Manpower needs can be adequately assessed only when assessments are made in on-site investigations and exemplar model programs.

A Tangential Discourse on Research Strategy

Currently the researcher tends to stand aloof. From a remote vantage point at the computer laboratory he observes, surveys, and tabulates. This type of research fairly radiates virginity, but unfortunately it suffers the fate of chastity: it is without issue. The detached nonparticipant researcher is unable to distinguish cause from effect (e.g., poor teaching from inadequate learning). Even if he could isolate an area which requires change, he finds it difficult to detail a practical solution, and almost always, he is unable to identify potential resistances to suggested improvements. Often he reaches faulty conclusions, because he generalizes from nonrepresentative behavior (e.g., students from low-income families are nonverbal because in the situation where they are observed they are too intimidated to talk).

Research like so many other activities of modern man has been transfixed by technology. The machine shapes the endeavor. Research is confined by its economics: the least expensive research and the easiest to manage is that which fits readily into the storage and retrieval capacity of the computer. Information that is not easily coded is not normally collected. For almost two decades, "sausage factory" research has dominated educational inquiry. This kind of research tends to be less concerned with the quality of the data and more concerned with the sophistication of the manipulation of the data. In effect (and often literally), the researcher stands by the machine waiting for the "runs." The biggest indictment of this research is that it has not led to any significant illumination of the manpower needs or asserted any other education problem.

Action research is no panacea. Most of the so-called demonstrations are not defensible because they demonstrate nothing. Even if based on significant theory and developed from a factual base, they are often miserably executed. There appears to be some misconception that action research can justifiably be sloppy because of an inability to control variables.

In actuality, the reverse is true. The researcher must compensate for lack of variable control by a corresponding increase in rigor and systematic analysis. The demand upon researchers for discipline is inversely proportionate to their power to manipulate variables.

Action research is susceptible to subtle kinds of corruption. Premature conclusion on the validity of the idea leads to lack of concern for true evaluation. The stance of the administration often is that "research isn't necessary since it is obvious that the demonstration works." Another bugaboo of demonstration is that failure to succeed reflects upon either the author or executor. Unwillingness

to accept this possibility of failure or marginal success creates an inordinate demand for an illusion of success. This is one reason that almost every innovation has been heralded as a major breakthrough, and yet, none have had a perceptible impact on the system.

All too often the researcher fails to accept the responsibility for formulating a strategy that leads from demonstration to implementation. If this demonstration operates under optimal conditions, high-quality staff and a supportive administrator, it is not necessarily true that a transplant to more ordinary conditions would be equally, if at all, successful. Feasibility of transfer to other settings and possibility for generalization to large-scale operation must be a consideration of the research. Researchers often delude themselves: they think they have a practical solution because they are oblivious of the distortions that can take place under nonresearch conditions. Through a systematic monitoring of program components, the research itself maintains a quality control not normally possible in regularly administered programs. Because of its expense, action research is not utilized to the extent it is needed. Adequate demonstration takes time and money. Given precious little resources for research, it is imperative that there be preliminary screening of models (demonstration projects) to determine their feasibility to provide solutions to major education dilemmas, such as manpower needs.

"New Careers" and Educational Manpower Research

Many models can be contrived that could possibly solve present and future manpower needs in education. The New Careers* approach is one such model, and it will be used throughout the paper as an example of how manpower can be approached. The New Career is posited as an alternate route to and is in many ways dramatically opposite to current preparation for a teaching career. Today, teachers get their education first; then they get their job. To have any career in education, a person needs at least four years of formal training before he is acceptable as a classroom teacher.

The New Career Model suggests an alternative in which the applicant gets his job first and then receives his education. This model is based on the multifaceted nature of the teacher role. Some functions

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*For a more complete description see Arthur Pearl and Frank Riessman, New Careers for the Poor (13)

demand professional competence; for other duties, persons with limited ability, training, or experience can perform adequately; and there are services that require persons with capacities intermediate to the entry and terminal professional tasks. Given a set of goals of education (as described previously), it is possible to define duties for entry, intermediate, and top-level roles. It is also possible to hypothesize a training program for persons at each level.

The New Career model offers four levels of teaching duties, ranging from a) aide through b) assistant, c) associate, and to the highest rung on the ladder, d) teacher. It should be possible for the motivated and talented to advance to the top position, although it is conceivable that any position could be a permanent career landing. Although not essential to the concept, the model depicted here assumes a team-teaching organization.

The aide position has no entrance requirements. The aide could relieve the professional of menial duties (clerical activity, operating or supervising the operation of audio-visual equipment, monitoring of hallways, etc.), but even within the entry position, there would be different levels of function. Some aides would graduate to lecturing, small-group discussion leadership, homework help, etc. Recent research has demonstrated conclusively that persons without any formal higher education have much to offer school programs in these capacities.

The assistant (assumed to have the equivalent of two years of college) will serve on the teaching team much as a teaching assistant does in a university. Under the supervision of a professional, he instructs in the classroom. Because of sophistication in subject matter attained through training and experience, he functions as an intermediate member of the teaching team.

The associate (equivalent to a college graduate) is a senior member of the teaching team. He is able to supervise lower-echelon personnel, be a subject matter specialist, and provide individual instruction to students in particular need.

The teacher (master's degree or equivalent) is the program specialist. He plans programs, evaluates the programs in context of education goals, supervises the on-the-job training of the lower-level staff. In essence, the teacher differs from associate, assistant, and aide in that they are various degrees of tacticians, whereas he is a strategist.

The Training Model

The New Careers approach calls for a marked change in higher education. One such approach, out of possible myriads, is presented here. In the current state of teacher preparation, with its unresolved difficulties, such a fresh approach can offer attractions. It is possible to create a training model that would satisfy both skill creation and liberal arts development and be totally independent of existing teacher-training programs.

Training for a teaching aide begins with his being assigned to an experienced teacher who is given release time to prepare the aide. In this setting, the aide can learn teaching methods, classroom management techniques, and become familiar with content. Six units of college credit are suggested for this component of training. In addition, three units of theory would be offered the aides. In this course (or seminar), learning, perception and motivation, sociological principles, and group dynamics would be discussed at a level commensurate with classroom function. The theory would be connected to practice through reference to problems encountered in the performance of duties.

The liberal arts aspect of training can be offered through courses brought to the school; and all levels of staff, as well as residents in the community, could participate in discussion. In similar fashion, training could be offered higher echelon personnel, with the level of instruction pitched to the level of activity.

There are some palpable inadequacies in current preservice training programs for teachers, e.g., remoteness of training from classroom function, lack of connection between theory and practice, fragmentation of training effort, years of preservice experience without opportunity to verify if teaching is the desired career, irrelevance and impracticability of training for difficulties encountered in actual experience. The model offered gives promise of remedying these difficulties.

New Careers as Solution to Specific Manpower Needs

The goals of education, sketched out previously in this paper, make schooling a more ambitious undertaking than anything previously attempted in this country. These goals cannot be obtained with the present pupil-teacher ratio. Although it would be premature to suggest optimal ratios, a working estimate is that ratios should be reduced from the 25 to 1 that now exists to something nearer to eight pupils to every person in a teacher role.

By 1975, there will be almost 20 percent more persons of school age than there were in 1965, and many more of this age group will be going to school. It is quite clear that an appreciable number

of children will start school at an early age. Many others will stay in school longer, graduate from high school, matriculate to college, graduate from college, and aspire to higher degrees. Given possibly twice as many students and reduction by a third of pupil-teacher ratios, it is probable that by 1975 instead of the 2½ million teachers needed, 10 to 15 million persons will be needed in teaching roles. It is absolutely impossible to provide such numbers without using persons other than certified teachers in the classroom.

It has become increasingly clear that persons other than certified teachers have a role in a school program. There are in excess of 100,000 of these now employed in some capacity in school systems in the United States. At least three different approaches can be taken toward these personnel. They can be given:

1) The Plantation Treatment

The nonprofessional school worker can be hired at extremely low wages and for irregular hours. At best he is marginal to the education process. No effort is made to train such personnel, both because of the waste of money and also the danger that, once trained, the nonprofessional would become "uppity."

2) The Medical Profession Treatment

The medical profession is based on a central professional figure who is exalted. His role receives the ultimate in prestige and remuneration. Surrounding him are satellite professions (nurses, dieticians, physical therapists, etc.). Each of these occupations has a limited range of advancement. No one has the possibility of becoming a medical doctor unless, of course, he negotiates the entire formal training sequence required for a medical-doctor status.

3) The "New Career" Treatment

The New Career approach places all positions on a continuum: a person rises in status as he attains competence. He is able to attain the top level by a variety of routes and to cross over to related fields or to the appropriate university standing. The approach has two unique features: it has more flexibility than either of the other two and it allows for assessment of ability based on actual job performance.

The Complexity of the "New Career" Model

The New Career approach calls for major structural changes in both higher education and the deployment of manpower. In order for it to succeed, there must be coordination between higher education agencies, employment centers, and legislatures. The higher education establishments must be willing to venture out where education is taking place. Agencies must define meaningful roles for each level of activity. Legislatures must create enabling statutes that allow for the hiring and make available the necessary funds.

New Careers will not emerge full-blown as Venus on the half shell. It will take considerable experimentation until all the bugs are worked out of each aspect of the system. What is currently needed is a relatively small number of carefully scrutinized demonstrations to become the beachheads from which more extensive programs can be launched.

Justification of New Career Strategy

There can be only three reasons for suggesting change in the manner manpower is supplied to education:

1) To improve the quality of service.

2) To develop adequate manpower for education needs.

3) To make available meaningful work to populations now excluded from a range of occupational opportunity.

There is some reason to believe that "New Careers" can accomplish all of the above .

1) Improvement of Service

The most obvious way that the New Career Approach can lead to improved service is by providing a much larger universe from which manpower can be drawn. At the present time, except for menial roles, teachers come from that select population that graduates from college (and, as observed by Conant and others, we do not even get the best of this group). As a consequence, the teacher population is heavily biased by social class. There is abundant evidence in the outbursts against schools in almost every urban area of this country that this population of school personnel is having enormous difficulty relating to children from diverse backgrounds. Middle-class youths also suffer from this restricted experience. In the highly interdependent world that is emerging they, too, need to have meaningful relationships with persons from diverse backgrounds. A New Careers approach would bring students into contact with personnel

from a wide variety of backgrounds and experience and thus facilitate attainment of the goal which leads to greater intra- and interpersonal competence. The quality of education is undermined when persons who relate well to young people, have valuable knowledge and experience to share, have the skills to share that knowledge and experinece, and are sensitive to the problems of youth are denied entrance to a teaching profession because they lack the formal education requirements.

The New Career approach offers a training procedure which, at least in theory, should produce more qualified teachers. Calling for long-term, supervised practical experience as part of the training, it should bring a level of competence at the professional and near-professional levels that we are not attaining by present methods.

New Careers allows for greater efficiency and therefore higher quality of training. At the present time persons can invest half a decade of their lives in preservice preparation, only to find that the actual experience differs greatly from the anticipated situation. The only recourse left to a teacher then is to struggle in a job situation that is not fulfilling (and thereby renege on his obligations to students) or to leave the field. The latter alternative comes at great expense to the taxpayer.

Improved screening procedures are possible with New Careers. Under current practice, persons are screened out of teaching by their behavior in schools of education and related college courses. There is no evidence to suggest that performance in a college program is related to ability to teach, and we have some reason to expect that the relationship, if it exists at all, is minimal. For example, college students often complain about the inability of highly trained academicians to communicate effectively with them, and teachers observe that preservice courses did not prepare them for classroom challenges. Preservice preparation does not simulate on-the-job demands. With New Careers, screening will be done on the basis of job performance. Persons unable to function at entry level will not be retained, and those with demonstrated talent in the classroom will be promoted to higher levels of activity. New Careers also offers a solution to the self-screening that currently takes place. Many persons screen themselves out of education because of their unwillingness to participate in what they believe to be the "Mickey Mouse" courses currently required for certification.

2) Meeting the Needs of Manpower

New Careers offer a coherent and logical plan to meet the expanded need for educational manpower predicted for the future. Consider the alternative, which is to do more of what is now done. To expand current practice means to place even more students in already overcrewded schools of education. Expansion of current facilities

and current programs can come only at the expense of the already dubious quality of endeavor. Refusing to plan systematically for manpower only increases the likelihood of frantic indulgences in ad hoc crisis management. It must be obvious to all that such efforts not only fail to solve today's problems but only create more difficult problems to solve tomorrow.

3) Meaningful work for those now excluded.

Education is soon to be America's largest industry. It is impossible to talk of solutions to poverty or social inequality without allowing the underprivileged to engage in careers in education. If education is limited solely to those with college education, the poor will be excluded for the foreseeable future. For reasons too numerous and complicated to be discussed in depth here, a very small segment of the poor are going to attain college diplomas. College education is expensive and becoming increasingly so; the cost of college education (even for those few disadvantaged students who receive scholarships) is prohibitive. Disadvantaged youngsters are discouraged from aspiring to college. In disproportionate numbers they are stigmatized as intellectually inferior, lacking in motivation, and inadequate in moral fibre. The New Careers approach allows for entrance at an appropriate level for the relatively untrained, inexperienced, and unskilled, and equalizes opportunity for the disadvantaged. Racial segregation and injustice are intimately linked with economic ills. Residential segregation is affected by income of persons and by their occupational activity. Bringing persons of diverse background and ethnic membership into education and allowing them to improve their position would facilitate healthy interrelationships and be a constructive alternative to intensified racial strife.

A Strategy of Implementation

The research strategy suggested here is that a small number of New Career model programs be established regionally; that these become the beachheads from which more extensive generalization of the idea is promulgated. Each model program should, in essence, develop a core of leaders who will be prepared to move into other areas and establish similar programs. Each of the model programs must take on four major responsibilities:

1) Demonstration of feasibility

2) Development of curriculum for generalization to other areas

3) Evaluation of impact and designation of possible pitfalls

4) Development of leadership